

# Does Content Determine Information Popularity in Social Media?

## A Case Study of YouTube Videos' Content and their Popularity

Flavio Figueiredo<sup>1</sup>, Jussara M. Almeida<sup>1</sup>, Fabrício Benevenuto<sup>1</sup>

<sup>1</sup>Department of Computer Science, UFMG, Brazil  
{flavio,v,jussara,fabricio}@dcc.ufmg.br

Krishna P. Gummadi<sup>2</sup>

<sup>2</sup>MPI-SWS, Germany  
gummadi@mpi-sws.org

### ABSTRACT

We here investigate *what drives the popularity of information on social media platforms*. Focusing on YouTube, we seek to understand the extent to which content by itself determines a video's popularity. Using mechanical turk as experimental platform, we asked users to evaluate pairs of videos, and compared users' relative perception of the videos' content against their relative popularity reported by YouTube. We found that in most evaluations users could not reach consensus on which video had better content as their perceptions tend to be very subjective. Nevertheless, when consensus was reached, the video with preferred content almost always achieved greater popularity on YouTube, highlighting the importance of content in driving information popularity on social media.

### Author Keywords

Content popularity; social media; user study

### ACM Classification Keywords

H.5.4 Hypertext/Hypermedia: User issues.

### INTRODUCTION

*What drives the popularity of information in social media?* Recently, this question has attracted a lot of research attention as social media sites become increasingly popular. An unresolved part of this question is about the relative roles of two primary forces that drive the popularity of a piece of information: (i) its content, i.e., the interestingness, topicality, or quality of the information *as perceived by users*, and (ii) its dissemination mechanisms, such as propagation by word-of-mouth, blogs or mass media channels. It stands to reason that both factors matter, but the extent to which they impact the popularity of a piece of information remains an open issue.

Many previous studies on how information becomes popular in social media sites focused on dissemination related factors (e.g. social influence, mechanisms that expose content to users, time of upload) [2, 4, 7, 9, 10], ignoring the role

of the content itself. Other efforts, instead, analyzed social media content focusing on data mining tasks such as popularity prediction [11] and video classification [5], analyzing popularity differences in content duplicates [2], and exploring content importance as parameter of popularity evolution models [8]. In this paper we take a different and complementary approach, focusing on understanding the extent to which content matters for popularity of videos on YouTube.

Our methodology attempts to assess *users' relative perceptions* of the contents of pairs of videos through user surveys conducted over Amazon mechanical turk. Users in our experiments are exposed only to the video content, and are not subjected to other factors (inherent to the YouTube site) that may impact their perceptions of content (e.g., user comments, social links, appearance of content in external sites). Specifically, we present to users pairs of videos from the same major topic and uploaded around the same date, and ask them to choose which one: (1) *they enjoyed more*, (2) *they would be more willing to share with friends*, and (3) *they predicted would become more popular on YouTube*. These questions target the user's individual perception of content interestingness and of the interests of her social circle (and thus the chance of the content spreading through it), as well as the user's expectations on a global scale. Our goals are to assess, for each of these questions, whether users reach consensus, and, when there is consensus, whether user perceptions match the relative popularity achieved by the videos on YouTube.

We find that users could not reach consensus in many evaluations, even when the popularity (on YouTube) of the evaluated videos differs by orders of magnitude. The lack of consensus is more striking for sharing and liking choices. It also depends on the video topic. This suggests that users' perceptions about content are quite subjective and that content may not be the most important factor that drives popularity in many cases. However, whenever participants reached consensus, their choices mostly match the video with largest popularity on YouTube, suggesting that, in these cases, content has a significant impact and predictive power on video popularity.

The goals of our study complement previous work. In particular, Salganik *et al.* [9] also relied on a user study to understand popularity dynamics. However, they focused on the impact of social influence on popularity, whereas we focus on the role of content and rely on users to evaluate the content in a setup that is isolated (to the extent possible) from dissemination mechanisms that might influence popularity. To our knowledge, the human perceptions of content and how they correlate to popularity in a social media site have not been

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